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Long-Term Welfare and Investment Impact of AIDS Related Changes in Family Composition: Evidence from Uganda

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Abstract

Although availability of quantitative information on the extent of AIDS in Africa is improving, the socio-economic implications of the epidemic remain poorly understood. This paper explores this issue for Uganda focusing on households who received foster children between 1992 and 2000, a phenomenon that affected more than 15% of households. We find that addition of a foster child resulted in significant reductions of per capita consumption, income, and household investment which were more pronounced for the poor. Initial disadvantages in foster children's access to education for this group were overcome in the course of UPE implementation while new inequalities have emerged in access to health services. Foster children's ability to access services will thus be affected by the broader policy environment as well as programs more specifically targeted at this group.

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1. Introduction

One of the distinguishing features of the AIDS epidemic is that, in addition to the immediate impact on those affected, the disease also has important secondary impacts on the survivors, especially children who, in case their parents die, often have to be hosted by their extended families. This implies that, in addition to the loss of life associated with AIDS, there may be broader impacts on surviving household members, in particular the orphans who are left behind. A growing literature describes these effects which may range from loss of assets, reductions in consumption and investment to changes in social behavior and marriage patterns, orphans' dropping out of school and possible psychological damage. There appears to be consensus that strategies and policies to help households cope with these impacts will become more important as attention shifts from the immediate issue of controlling the further spread of the disease towards dealing with the broader consequences in a way that minimizes disruption and economic hardship.

To help in the design of such policies and interventions that aim to accomplish this, it is important to understand not only the direct and short term impact of the changes caused by AIDS deaths but also of the longer term and indirect effects on survivors given households' behavioral responses and traditional coping mechanisms. A number of studies have explored this issue by examining the impact of AIDS-related deaths on children's school attendance, nutrition, and households' coping mechanisms. However, lack of data covering long time periods often prevents a more specific quantitative assessment of the longer-term and indirect impact of such events on surviving children and households. As a consequence, little is as of yet known about the magnitude of the impact of having to care for an additional household member, the extent to which it persists over time and, by implication, the need for specific policy interventions or the nature that such interventions should take.

In this paper we use data from a eight-year panel of Ugandan households to explore the impact of having to host a foster child on welfare of the recipient household as well as the child. We do so by focusing on outcome variables at the household level, i.e. recipient households' consumption and investment, as well as access to public services by the foster children themselves. The motivation for the first set of variables is to find out to what extent the consumption-reducing impact of receiving a foster child persists over time and whether such a shock could, for example by leading to a reduction in household investment, force households towards a permanently lower trajectory of consumption growth. To do so, we compare levels of consumption growth and investment in the 1992-2000 period for households who did and those who

did not receive foster children allows us to make inferences on this issue. Finding a significant impact on investment could, if the shock under consideration affects a sufficiently large number of households, have broader macro-economic consequences.

To complement the analysis of the impact on households' accumulation of physical capital, we assess the extent to which being a foster child affects the ability to accumulate human capital and access public services and the impact that policies had on this variable. We distinguish between foster and own children and control for environmental variables that might simultaneously affect outcomes, by comparing foster children to their brothers and sisters in the same household. Adding a time dummy plus interactions allows to assess whether shifts in policy regimes that had been observed over the period of interest affected these groups in a systematically different way.

Results suggest that receiving a foster child has a long-term impact on consumption which is particularly pronounced for the poor, and also reduces levels of investment. This is particularly remarkable as the estimates are likely to constitute a lower bound of the true impact. Even though more information would be needed to provide guidance as to the design of specific interventions, our results suggest that to the extent that they would help households to smooth consumption and maintain investment, programs to support poor households who receive foster children could be justified economically. At the same time, the results concerning school attendance and access to health services highlight that, independently of policies targeted specifically at orphans, the general policy environment will have a profound impact on whether or not foster children's access to opportunities differs systematically from that enjoyed by the rest of the population. We find that, in education, policy initiatives that broadened access on an unprecedented scale have not only benefited the population as a whole but, more specifically, allowed foster children to compensate for disadvantages from which they had suffered previously. In the health sector, by comparison, an overall decrease in the availability of vaccination seems to have been exacerbated in the case of foster children, implying that in 2000 their access to such services (absolutely and in relative terms) was significantly lower than what it had been in 1992. Both findings are consistent with the interpretation that foster children will be particularly exposed to policy changes, in both directions.

The paper is structured as follows. Section two provides the background and a brief review of the literature on the subject, outlines the questions to be addressed, and describes the panel data to be used. Section three discusses the methodology to be used both with respect to investment and human capital formation and health outcomes and provides some initial descriptive statistics for each of these two areas. Section four contains the econometric results in the form of regressions of investment rates as well as health and educational outcomes. Section five concludes by drawing out some policy implications.

2. Background, motivation, and data sources

From being a relatively minor incident in the early 1990, the extent of orphanhood has expanded dramatically since then, with implications that may go far beyond the individual victims and their families. While some consensus on the dimensions of the problem has emerged, this is often based on weak empirical foundations and doubtful assumptions, implying the desirability of complementing broad figures with more specific evidence from household surveys. We discuss the questions that need to be answered in doing so, methodological issues involved in addressing them, and describe advantages and drawbacks of the data from Uganda in doing so.

2.1 Magnitude and possible impacts of the orphan crisis

In the early 1980s barely 2 percent of African children under 14 were orphaned, i.e. had lost one or both of their parents. Since then, this number has increased dramatically. Although methods used, data quality, and the magnitude of existing estimates differ widely, many donors and international organizations suggest that the magnitude of orphanhood is large and increasing. UNAIDS figures suggest that in countries such as Zambia, Zimbabwe, and Uganda, the proportion of orphaned children has now reached 15-17%, and is expected to increase further. In Zambia, the number of orphans is expected to almost triple from 0.65 million now to 1.7 million by 2010. The situation is expected to be even worse in countries such as Cote d'Ivoire and Nigeria where the number of AIDS cases is still on the increase. In Uganda, a recent DHS survey estimates that every fourth family is hosting an orphan. There is a growing literature that describes the multi-faceted impact of AIDS deaths in this country (e.g. Ntozi 1997, Sengendo and Nambi 1997, Mutangadura 2000; White and Robinson 2000). These studies demonstrate not only the widespread incidence of the disease but also differences in incidence among socio-economic and age groups.[1] While there is thus broad consensus on the social and economic importance of orphanhood, it is less clear how to translate this into policy.

A phenomenon of this magnitude could entail long-term costs to orphans themselves and to the overall economy. The costs to children include the possibility of dropping out of school as well as a decline in nutritional status, increased child labor, and potential loss of assets including land. The direct impacts of orphanhood on childrens' educational status and access to health services are well documented. Descriptive data point towards large differences in school enrollment between orphans and children whose parents are alive in the 10-14 year age group for example in Mozambique (68% vs. 24%); the Central African Republic (65% vs 33%); Kenya (93% vs. 72%), and Niger (28% vs 10%). This implies a

big challenge of preserving Africa's human capital base for the future (UNICEF, 2000). There is evidence that orphans' access to schooling and nutrition may be worse than that of non-orphans (Ainsworth and Semali 2000a; Ainsworth et al 2000b). At the same time, it has been found that, in extended families, households' ability to compensate for the death of a family member can be considerable, thus possibly helping to smooth out the impact of shocks (Lundberg and Over 2000). This seems consistent with the fact that more detailed examination of DHS surveys reveals a much less consistent picture across countries (Ainsworth and Filmer 2001). Identifying both the impact of losing one's parent on children's welfare and access to services, as well as the policies that might affect the nature and magnitude of this impact would thus be of great interest and relevance.

One key element is that the growing number of orphans is likely to alter affect households' economic strategies, in particular their decisions regarding decisions on consumption and investment. In most African countries, children who lost one or both of their parents are taken in by their extended families who therefore have to bear part of the shock. Thus, in addition to the loss of human capital through death, the disease will have far-reaching implications which range from reductions in consumption and loss of assets to broader shifts in labor demand and agricultural productivity as well as modifications in customs and social norms such as marriage and inheritance patterns which may imply reduced access by women land and other sources of livelihood (Foster et al. 1997; Mukiza-Gapere and Ntozi 1995; Ntozi et al. 1999). Although the phenomena are well known and described in the literature, attempts to rigorously quantify their magnitude and thus assess the implications of such care-giving on the households concerned have been relatively rare.

2.2 Methodological considerations

Uganda is a particularly interesting case to study the broader impacts of AIDS because it is one of the few countries in Africa where, as a consequence of quick and decisive action by government, the incidence of new infections is now generally believed to be declining (Ntozi and Ahimbisibwe, 2000). This provides an opportunity to focus on the indirect and longer-term impact of the disease, something we aim to accomplish by addressing three questions. First, to assess the magnitude of the crisis, we provide an estimate of the increase in foster children between 1992 and 2000. Second, we aim to measure the incidence and magnitude of the loss of consumption as well as the reduction of investment associated by addition of a foster child to a household. Finally, we focus on the extent to which in foster children's access to health and education services differs from that by non-foster children in an attempt to illustrate the longer-term implications for the human capital stock of the economy. To be able to measure the

[1] For example, the fact that the incidence of AIDS is much higher among females than males in the 20 to 24 age group (Ayiga et al. 1999) has implications of preventive strategies.

indirect impacts of a shock such as AIDS , it is important to have a broad set of household characteristics, to have the same type of information for a representative sample that includes information on a control group of households who were not affected, and to use longitudinal information spanning a longer time horizon in order to distinguish immediate short term responses from longer-term impacts, thus making inferences on the longer-term impact of any specific shock.

Lack of information on other household characteristics makes it difficult for many studies to assess to what extent observed differences can be attributed to these phenomena. The reason is that effects may be compounded by other shocks -either negative, such as crop loss due to disease, or positive, such as increased remittances from the extended family. Such events, as well as other household characteristics, are very likely to affect the ability to deal with the impact of the disease. Lack of information on them makes it very difficult to ascertain how households with different asset endowments deal with the shock and whether there are systematic differences in the ability to do so across wealth classes.[2] Such lack of socio-economic characteristics makes it difficult to use these surveys as a basis for drawing broader policy conclusions. More information would be needed not only to decide on policies that might be adopted to help minimize the damage wrought by the disease but also to assess the effectiveness of specific policies.

To make information on AIDS useful for policy analysis, and in particular to separate the impact of the shock from that of simultaneous changes in the broader economic and social environment, it is not enough to have information for households who were directly affected. A control group, preferably representative of the overall population,[3] is needed to ensure that what is measured is not just a reflection of other changes. Having such a control will allow to separate changes in "treatment" households resulting from the shock from changes attributable to broader modifications in the socio-economic environment, e.g. macro-economic policies or localized events such as good or bad harvests, construction of roads, etc.).

If, as variously argued in the literature, the longer term impact of the disease may be as important as what happens in the immediate time surrounding death, it would be desirable to have information that spans a longer time horizon, preferably collected for the same household at different periods in time, to distinguish short-term adjustments from longer-term impacts. Indeed, for Uganda, adding additional rounds to initial surveys has provided greatly improved information on households' coping mechanisms as well as the incidence of the impact (Ntozi and Ahimbisibwe 1999). The ability to assess the impact of

[2] For example, DHS surveys can provide valuable information on the incidence of the disease and, in cases where multiple surveys have been undertaken, its changes over time (Hunter and Williamson 2000), even though they suffer from some shortcomings associated with the choice of the sample (Bicego et al. 2000).

[3] Having only people from a particular area or region risks that general equilibrium effects will mar the picture.

AIDS deaths in a longer-term perspective is of great relevance in terms of the persistence of the shock and therefore the possible justification for government intervention.

2.3 Key questions, data, and descriptive results

Our empirical analysis is based on a panel data set formed by the 1992 Integrated Household Survey (IHS) and the 1999/2000 Uganda National Household Survey (UNHS). The IHS is a comprehensive multi-purpose household survey based on a nationally representative sample of 9886 households. In addition to the standard socio-economic and expenditure information, the survey contains detailed information on households' economic activities. The UNHS is a nationally representative survey of 10,696 households, fielded between August 1999 and September 2000. The questionnaire was developed to closely match the one used in 1992 and a panel of approximately 1300 households who were interviewed in both periods was included. Use of the panel enables us to not only to make inferences about changes in the incidence of AIDS and of foster children over time but also to assess the impact of the addition of a foster child to the household during the period under concern.

The ability to use a panel of households that spans a long time period comes at the cost of not being able to identify true orphans. We therefore focus on foster children, i.e. children who are not physically related to the household head, throughout. Three arguments suggest that this may be less of a limitation than one would think. First, while the lack of overlap would be a serious limitation if we were concerned only about the impact of AIDS, whether or not the physical parents are still alive is less of an issue if one is interested in a broader range of shocks (including, for example, fostering that is induced by the displacement of children or families caused by civil strife in various parts of the country). In fact, even in cases of AIDS, children may be sent to relatives before the death of the victim, especially in the case of single parent households. Second, under the assumption that the magnitude of measurement error does not change over time, the variable of interest, i.e. the change in AIDS-related foster children will still be measured accurately. Finally, economically motivated fostering (e.g. mothers leaving their children in the village to be able to pursue urban careers) is highly unlikely for children below the age of 6 and in primary school age. To the extent that, at higher age, one of the main purposes of such fostering is to improve access to schooling, one would expect that, if there is any bias, it would be in the direction of better access to services by foster children. In fact, economically motivated fostering has been observed to be associated with a transfer of wealth to the household taking care of the child, which then is generally expected to do better in school than its peers (Ainsworth 1996). Any estimates of economic hardship caused by the receipt of a foster child derived from such a sample would thus underestimate the effect of crisis- or shock-related fostering, implying that the figures given will constitute a lower bound for the true shock-induced impact of this phenomenon.

Descriptive statistics that can provide a picture of the general characteristics of the population in the sample as well as the incidence of fostering, are illustrated in table 1. In general, one notes that Uganda remains a predominantly rural economy that experienced considerable improvements in living standards, albeit from a very low basis. A clear indicator is the improvement of housing conditions. The share of households who live under a thatched roof decreased from almost 70% to less than 50% from 1992 to 2000. However, the share remains high, at about 94% in the North. Also, the share of households with cement walls more than doubled, from 5% to 13%. The improvement in living standards is corroborated by a decrease in the number of children suffering from stunting, i.e. long-term malnutrition, from 53% in 1992 to 43% in 2000. At the same time, and consistent with the literature (e.g. Milner et al. 2000), supply of most public services, especially access to piped water and electricity, remained stagnant through the period.

In sharp contrast to the improvement in living standards, the share of households who hosted a foster child shows a marked increase over time, suggesting that, even though the number of new infections is on the decline, long-term impacts of the AIDS crisis may still have to be addressed. The increase of fostering has been particularly dramatic for children below school age where between 1992 and 2000 the share of foster children increased from 10% to almost 20%, with an even stronger increase in the North (from 7.2% to 19.3%). With almost every fifth child not living with its physical parents, the distribution of foster children over households has also increased – while in 1992 it was only 5% of households who hosted a foster child, this figure tripled to 15% in 2000. While the share of foster children in the 6-14 year old group is similar, it is more widely spread across households. With almost one third of households having a foster child, this phenomenon may well have broader macro-economic consequences. These figures are supported by descriptive evidence from the about 1,200 panel households who were included in both the 1992 and 2000 survey (not reported). Of these, 23% experienced an increase in the number of foster children in the below 14-year age group during the period, two thirds of which (i.e. 15% of the total population) was for foster children below the age of 6 years. Before exploring the economic impact of this phenomenon in more detail empirically, we discuss the methodological framework for estimation.

3. Methodology and estimation strategy

In line with the earlier discussion, we aim to quantify the impact of fostering in two respects. With respect to the household concerned, we expect to see a *consumption* or *investment* effect of having to accommodate additional foster children. Concerning foster children themselves, it is likely that there is a *public good access* effect, i.e. to the extent that providing access to such goods is not costless, any given household would be more likely to favor access to such goods by own rather than foster children. In fact,

descriptive statistics point towards a significant and quantitatively large effect in both cases, thus providing a justification for further econometric exploration which, among others, aims to relate this to overall policy regimes.

3.1 Consumption and investment effects of receiving foster children

The intuition underlying the investment effect is straightforward; households subjected to an unanticipated shock in the form of having to accommodate an additional foster child are likely to reduce their level of investment.[4] Formally, let households be indexed by k and individual members by j and assume that at any point in time t, the household maximizes a unitary utility function $U_k\ (C, H_j, E_j)$ that depends on total consumption C as well as on the health and education status of each member, H_j, and E_j. Let unobserved individual ability be given by A_j,, supply of health and education services by S_H and S_E, and spending on health and education by Q_{Hj} and Q_{Ej}. With health and education for each j produced according to standard neoclassical production functions $H_j = H(A_j, Q_{Hj}, S_H)$ and $E_j = E(A_j, Q_{Ej}, S_E)$ and Q_{Hk} and Q_{Ek} denoting spending for the whole household, respectively, the period budget constraint can be written as $C_t + Q_{Hkt} + Q_{Ekt} + I_t \leq Y_t$ where I denotes investment. The optimal amount to be invested in business assets in each period t, I^*_t solves the intertemporal value function $V(t) = U(t) + \beta\ V(t+1)$ and depend on a number of parameters such as initial endowments of education, the number of family members, and initial levels of assets owned. Now, suppose that the household is faced with a sudden shock in the form of receiving an additional foster child. This will affect contemporaneous consumption but also the amount of investment. Distinguishing between households who, in the period under concern, experienced such a shock and those who did not, allows us to estimate a reduced form consumption or investment equation of the form

$$(1)\ \Delta C_k \text{ or } \Delta I_k = \alpha + \beta\ \Delta F_k + \gamma \boldsymbol{H}_k + \varepsilon_k$$

where C_k is the change in per capita consumption by household k between the initial and the final period (and I_k is the same for investment), ΔF_k denotes the change in the number of foster children experienced by the household during the same period, $\boldsymbol{H}_k$ is a vector of household attributes including initial characteristics and changes over the period, and ε_k is an error term. Clearly, with unchanged levels of consumption, addition of a member to the household would decrease per capita consumption. At the same time, to the degree that foster children may own assets that are (temporarily or permanently) added to the endowment of the household hosting them, the impact on asset levels and investment may be more ambiguous. In both cases, we are particularly interested to find out how the impact of adding foster children differs from that of adding own children to the household.

To estimate this equation, we use the change in per capita expenditure (including home consumption) or the increase in enterprise assets between 1992 and 1999 as the dependent variables, respectively. Given that both surveys contained similar expenditure modules, construction of an expenditure aggregate that is comparable over time did not pose any particular problems, especially since the methodology for doing so is well established in the literature(e.g. Deaton and Zaidi 2001). Due to problems in the comparability of asset stocks between the two surveys, obtaining comparable data on investment or changes in households' asset stock between 1992 and 2000 was somewhat more difficult. Field tests indicated that the best way to do so is to recall, for each of about 25 types of household and enterprise assets, the value of the asset in question in 1992. Since it was impossible to obtain precise information on such values, a discrete ranking with 5 levels values was used to indicate whether the value of the asset under concern was about equal, somewhat more, somewhat less, or much more than what is available now (or whether the household did not own any of this type of asset). To transform this into a value for the household's asset stock in 1992, the rankings for each asset were transformed into percentage increases (0, + 25%, -25%, + 50%, and -100%, respectively), allowing to compute the total value of different categories of assets owned by the household. The different categories were aggregated to yield a total asset value in each period, allowing to make inferences on changes in investment between the two periods.

3.2 Foster children's health and education outcomes

Solution of the inter-temporal maximization problem sketched above also yields optimized demand functions $Q^*_{Hj}(A_j, S_H, Y)$, and $Q^*_{Ej}(A_j, S_E, Y)$, for health and education, respectively. Under the standard assumption that for two children of which one is own (denoted by l) and one is fostered (denoted by m), $U'(H_m, ..) < U'(H_l, ..)$, one would expect spending for child m to be lower than for child l. Assuming further that outcomes increase monotonically in spending and that ability (or genetic endowment) is uniformly distributed among the population, the observed health or educational status of each child becomes a function of household characteristics, supply of services, and whether or not the child is own or fostered. This can be utilized to estimate cross sectional reduced form equations for health and educational outcomes H_{kj} and E_{kj} for child j in household k.

$$(2)\ H_{ktj} = \alpha + \boldsymbol{\beta} \boldsymbol{X}_{kt} + \gamma \boldsymbol{Z}_{kjt} + \boldsymbol{\beta}_T \boldsymbol{X}_{kt} T + \gamma_T \boldsymbol{Z}_{kjt} T + \chi T + \varepsilon_{kjv}$$

where $\boldsymbol{X}_k$ is a vector of household specific characteristics that include household income, the head's age and education, etc., $\boldsymbol{Z}_j$ is a vector of child specific characteristics including an indicator for whether or not the child is a foster child, and ε_{kj} is an error term that is composed of a household-specific effect η_k and a random white noise term ν_{kj}. As for most of the outcome variables, there is at two observations at

[4] As will be discussed in more detail below, the fact that the shock may not be completely unexpected will not affect the results from the

different points in time are available either for two cross sections or for a true panel, we add a time dummy T equaling zero if the observation is from 1992 and one if the observation is from 1999. The coefficient χ then denotes the magnitude of an independent time trend and $\beta + \beta_T$ or $\gamma + \gamma_T$ are the coefficients on household or individual characteristics, respectively, in the second period.

While this equation can be estimated using standard OLS, presence of unobserved household characteristics, if correlated with other right hand side variables, may result in biased estimates. This can be eliminated by focusing on variation between different children (fostered and own) within the same household, i.e. by estimating a fixed effects equation

$$(3)\quad H_{jkt} - \overline{H}_k = \gamma(\boldsymbol{Z}_{jkt} - \overline{Z}_k) + \gamma_T \boldsymbol{T}(\boldsymbol{Z}_{jkt} - \overline{Z}_k) + \chi T + \nu_{jkt}$$

As the sample includes about 1300 households who were observed in both periods, the coefficient χ can be identified, something that would not be possible if we had two pooled cross sections only.

This framework allows to evaluate overall changes in health or educational outcomes that can be attributed to general policy shifts (χ) separately from changes in other household characteristics, including whether or not the household had to care for foster children. Doing so, allows us to identify to what extent (i) a gap between foster children and other children existed in 1992; (ii) to what extent this gap has narrowed since then, something that would reflect that programs aimed at foster children or the survivors of AIDS victims have been effective; and (iii) whether the overall level of service access has changed, pointing towards the fact that both groups were equally affected by general government programs and, in addition, facilitates statistical testing of the significance of specific variables.

From a substantive point of view, policies in the education and health sector differed considerably from each other during the period under concern (i.e. 1992-2000). In education, a major policy initiative, in the form of the program of Universal Primary Education (UPE) was introduced in 1997. By eliminating the costs of schooling for up to four children per household (of which at least two had to be girls), this program aimed to boost enrollment and thus human capital acquisition especially by the poor. In addition to the elimination of fees, publicity campaigns and mobilization drives at the local level were conducted and appear to have been quite successful (Watkins 2001).[5] In the health sector, the period coincides with an increase in user fees as a measure to improve availability and quality of supplies. While the latter appears to have been achieved, household surveys suggest that the policy also led to a considerable

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econometric estimation

[5] One would expect that, at the primary school level, the introduction of UPE would have reduced the incentives for and extent of economically motivated fostering, something that would impart a conservative bias on our estimates.

increase in health spending by the average household (Deininger 2001).[6] The framework sketched above allows us to identify empirically whether these policies had a differential impacts on foster children who are likely to be among the most vulnerable groups in society.

3.3 Data and descriptive statistics

Descriptive statistics on income, expenditure, and investment, can provide a first indication of whether or not these variables are significantly different for households who, during the 1992-2000 period, experienced an increase in the number of foster children they had to care for, as compared to those who did not. While income and consumption are defined in a standard way (the latter including home production), the value of assets for both 1992 and 2000 was computed based on retrospective information given in the 2000 survey as discussed above.

Table 2 presents evidence on the changes in real per capita expenditure and income for those who did and did not receive a foster child below the age of 14 based on the approximately 1300 panel households for which information on initial conditions (including presence of a foster child) is available. Results of standard t-tests for the equality of means between the two groups are indicated by stars. Both in the aggregate and if only foster children of the age in the 7-14 year age group are considered, one notes large and statistically significant differences between the two groups. It is not surprising that addition of a foster child would reduce per capita consumption. At the same time, the strong negative effect on investment suggests not only that foster children add few assets to a household's endowment but also that there is a significant negative relationship between receipt of foster children and investment.[7] To interpret it is difficult appears to be persistent over time. This may indicate that existing mechanisms to cope with such shocks fall far short of the ideal of complete insurance. More importantly, data on mean investment, as described above, suggest that households who had to accommodate a foster child invest significantly less than those who did not. This may be a first indication to suggest that shocks of this type drew resources away from economically productive pursuits and thus reduce a household's income generating capacity in the longer term.[8]

Table 3 illustrates descriptive statistics for outcome variables in the area of health and education. The former comprise use of vitamin A capsules, a variable that is available only for 2000, and vaccination against diphtheria and measles, for all children below the age of 6. For education, we focus on net

[6] In fact, user fees for health services were abandoned in March of 2001. It remains to be seen to what extent this will affect availability of supplies and staff motivation as well as households' ability to receive adequate services.

[7] While this does not necessarily imply a causal relationship, the fact that, as explained earlier, households who received foster children had slightly higher initial asset endowments would suggest that there is no significant selectivity bias. More research on this issue, in particular trying to find a good instrument (such as being related to a household who experienced an AIDS-related death) would be of great interest.

[8] The lack of information of higher frequency as well as an indication on precisely when the foster child entered the household prevents us from identifying how households were able to cope and in particular whether the addition of the foster child resulted in a permanent reduction of

primary and secondary attendance for children in the 6-12 and 12-18 age group. The evidence suggesting a general decline in the share of children with access to vaccination and an increase in those having access to education reinforces the importance of having a control group that allows to distinguish shock-induced changes in service access from those occurring as a consequence of broader policies.

In education, descriptive data point towards a marked increase in overall attendance and very little difference between foster and non-foster children either in the initial or in the second period. While this would *prima facie* suggest that foster children do not suffer from disadvantages in education access, none of these descriptive statistics holds constant for other -observable and unobservable- factors that may have an impact on such outcomes. To avoid drawing spurious conclusions, it will be necessary to account for such factors. In health, comparison between foster children and own ones indicates that, even though the former participated in the general decline of health-service access, they had significantly less access to all three types of health services in the 1999/2000 period than those who lived with their physical parents.[9]

4. Econometric results

Use of a regression framework to explore mechanisms that might underlie the differences in outcomes observed in the descriptive statistics suggests that changes in the number of foster children have had a clear, and quantitatively large, impact on household welfare that was particularly pronounced for the poor. The need to care for a foster child also reduced investment, contrary to "natural" increases in household size. In 1992 foster children, as compared to those physically related to their parents, faced large obstacles in accessing education which, largely as a consequence of UPE, appear to have been eliminated up to 2000. By contrast, while there was no difference in access to health services between foster children and regular ones, a significant difference had emerged by 2000. This suggests that the impact of policies directed at the whole population may be magnified in the case of foster children.

4.1 Consumption and investment

Results of estimating equation (1) with the mean annual rate of consumption growth or investment over the 1992-2000 period are reported in table 4.[10] The investment equation (columns 1 and 2) provides strong support for the conclusion suggested by descriptive statistics, suggesting that addition of one foster child to a household had reduced investment by between 0,59 and 0.51 percentage points. It is of interest to note that the sign of the coefficient on the change in foster children is opposite to that on "natural"

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welfare or whether it led to a big immediate decline from which the household was able to gradually recover This would be of considerably interest and constitutes an important area for follow-up research.

[9] This is particularly surprising since foster children were, in 1992, significantly *more* likely to be vaccinated against measles.

[10] The change in the number of foster children below 14 and in the 7-14 age group are entered separately as right hand side variables.

increases in household size. In fact, both higher initial household size and addition of members to the household during the period are estimated to be associated with an increase in investment of between 0.09 and 0.11 percentage points per person. Other variables are as expected; the age of the head (in squared form) and initial asset value are negative, pointing towards reductions of investment over the life-cycle and a decrease in the propensity to invest with higher initial levels of assets. The latter is consistent with towards conditional convergence in asset endowments.

To illustrate the magnitude of this impact, note that overall annual investment in the sample was only about 2.2% and that, with an average of almost four children below 14 per household, AIDS-related deaths normally create more than just one orphan that needs fostering. Comparing the estimated magnitude of the impact to that of other variables such as education and regional dummies suggests that adding only one foster child has the same effect on investment as a reduction in the head's level of education by about 3 years (with the median head in the sample having four years of schooling). The regression also suggests that rates of investment in the North are 0.75 percentage points lower than in the rest of the country, a value that is only slightly higher than the estimated impact of receiving a foster child at the household level. All of this would imply that the increase in the phenomenon of fostering observed in the descriptive statistics will have a significant impact on reducing investment which could be of broader relevance for economic growth. Although further and more specific research would be required to identify mechanisms and policy options that could help prevent such an undesirable outcome, the impact on investment, together with the rapidly growing incidence of fostering is likely to deserve attention by policy makers.

A second variable that will be affected by the need to accommodate foster children is the growth of consumption (columns 3 and 4). It is not surprising that an increase in household size will be associated with lower levels of per capita consumption. At the same time, we note that the estimated magnitude for the reduction of consumption caused by addition foster children is significantly larger than the effect of adding own children. Also, the positive coefficient on the interaction between the change in foster children and initial per capita income would imply that the consumption-reducing impact of adding a foster child is particularly marked for the poor. While higher initial incomes allow to cushion the impact of having to host foster children. the negative impact of adding one foster child will be neutralized only for households with an initial per capita income of more than US $ 265, implying that that even adding one foster child (and clearly adding more than one) will reduce consumption for the 85% of the sample whose initial per capita income is below this level.

From a methodological point of view, note that the regression framework is based on the shock being exogenous. As AIDS related deaths occur only after some illness, households are likely to have some

period of during which they can make adjustments, implying that this assumption may not hold. To the degree that households will be able to anticipate the addition of foster children and take precautionary measures, the measured impact would be biased downwards, implying that our estimate provide a lower bound for the true impact. The regression results thus lead us to conclude that the significant increase in the phenomenon of fostering that was observed in the descriptive statistics will not only affect household welfare, especially of the poor, but also, and more importantly from a macro-economic point of view, reduce overall investment in the economy.

4.2 Educational outcomes

While physical capital is one key ingredient for growth, human capital endowments, in terms of educational and health status of the next generation, are often assumed to be of at least equal importance. Exploring factors that affect children's access to schooling and health services suggests that in both areas foster children faced specific challenges but that policies aimed at improving overall access are likely to have a particularly strong impact on this group.

Results for actual school attendance, as distinct from enrollment, [11] are reported in table 5, separately for primary and secondary schooling. Both cross sectional regressions and those with household fixed effect suggest that foster children had faced a disadvantage in 1992 but that, together with a considerable expansion of enrollment opportunities for the whole population, this disadvantage has disappeared over time. The coefficient on the foster child dummy is highly significant and negative both for primary education of 6-12 year olds as well as for secondary education of 6-18 year olds, both in the cross section and, for a smaller sample, with household fixed effects. This suggests that, initially, foster children were at a distinct disadvantage in terms of access to opportunities, for both primary and secondary education.

At the same time, the interaction between time and the foster child dummy which is consistently positive and highly significant.[12] This would imply that, the policy of UPE and associated policy reforms have been particularly beneficial to foster children. In fact, we can not statistically reject the hypothesis that, in 2000, foster children's disadvantage with respect to enrollment has been completely eliminated, i.e. after the adoption of UPE, being a foster child does no longer convey a disadvantage with respect to access to education.. In addition, we find that, especially in the case of primary education, the time dummy is significant and highly positive throughout. The slightly smaller but similarly highly significant coefficient for secondary education implies that, in addition to directly improving levels of primary enrollment, UPE is likely to have generated spillover effects that helped to improve enrollment at the secondary level as

[11] The survey measures children's school attendance at the time enumerators visit the household rather than enrollment. The latter is defined as a child reporting to school at the beginning of the school year and thus does not necessarily imply attendance during the survey period

[12] The only exception is the somewhat lower significance (at 10%) in the case of secondary education which can most likely be attributed to the reduced number of observations available.

well. In addition to the benefits accruing specifically to foster children, the regressions point towards other beneficial impacts of UPE. For example, the bias against females that had previously characterized the educational system has been completely eliminated and the impact of parental education and household income have both been significantly reduced, suggesting that foster children obtained particular benefits from the generalized improvement in public service delivery over the period. The overall conclusion is that implementation of UPE has helped to increase primary enrollment across the population, irrespectively of their socio-economic status, but had a particularly beneficial impact on foster children.

The data do not allow more specific identification the reasons underlying this phenomenon. In particular, we can not distinguish whether the measured impact came about as a result of the government's policy alone or whether additional measures such as the intervention of NGOs in favor of orphans played a facilitating role. Irrespectively of the precise mechanism at work, it is noteworthy that government programs which were *not* specifically targeted at orphans had a particularly beneficial impact on this group.

4.3 Health outcomes

The equations for vaccination against diphtheria and measles suggest that the changes observed in the case of health have been quite different from those in education. Specifically, we fail to find any evidence for discrimination against this group in the initial period, as evidenced by the lack of significance of the dummies for both the cross section and the fixed effects regression. The negative coefficient of the interaction between foster and time dummies suggests however, that, contrary to the improved access to education, young foster children's health access worsened disproportionately over time, compared to the overall population. While foster children suffered from no disadvantage with respect to vaccination in 1992, they were much less likely to be vaccinated in 2000. Especially if taken together with the findings from the education regression, this strongly suggests that government policies can make a difference in terms of access to services. While part of this phenomenon may be due to supply-side factors (there are anecdotal reports that clinic staff are, for various reasons that range from social stigma to fear of contracting diseases themselves, averse to dealing with foster children), the result points towards the fact that, contrary to what was observed in the case of education, the health sector lacked a policy that would have helped foster children to overcome their natural disadvantage.

Restricting the sample to the same households (columns 2 and 4 of table 6) also yields a negative and significant coefficient on the time dummy, pointing towards a more universal decline in households' ability to access vaccination services between the two periods. The fixed effect regressions thus suggest that the deterioration in access to health (vaccination) services was associated with a direct bias against

foster children. The available information does not allow to assess whether this deterioration in service access is related to the adoption of increased user fees in the health sector or other supply-related factors although the fact that vaccinations continue to be provided for free makes the latter more plausible. Irrespectively of the specific explanation, results highlight that, in the absence of government policies to broaden access, foster children's ability to use health services may be particularly difficult.

Even though they do not allow to make inferences on changes over time, cross sectional results from a logit estimation for use of vitamin A capsules, with and without household fixed effects, confirm the relative disadvantage of foster children (table 7). The impact of most of the standard household characteristics in the cross section is as expected, highlighting in particular that use of capsules increases with income as well as parental education and that there are pronounced region-specific effects. Both equations suggest that, even once other household characteristics are accounted for, foster children have a significantly lower probability of using vitamins than own children.

5. Conclusions and policy implications

The evidence from Uganda suggests that adding a foster child to a household has an significant impact on overall welfare, especially for the poor, and the propensity to invest, part of which may derive from the fact that additional expenses have to be incurred for schooling and clothing of the new family member. Indeed, we note that the reduction of school fees associated with the UPE program has helped to eliminate the disadvantage of foster children. At the same time, foster children are less likely to be vaccinated than ordinary ones, suggesting that policies to increase user fees might have had an impact on outcomes in the area of health. Clearly, since the data used was not collected with the goal of providing detailed evidence on orphans and in particular changes in well-being of this group over time, it can only provide initial evidence which needs to be backed up by more detailed and specific research. We therefore conclude by highlighting some preliminary conclusions and identifying how they could give rise to hypotheses that can be tested by further research,

A first finding is the sheer magnitude of fostering in Uganda and the extent to which the phenomenon has increased over time. This suggests that, even if the immediate impact of AIDS on mortality is on the decline, the legacy of longer-term impacts that ahs to be dealt with will constitute a formidable challenge for the foreseeable future. In fact, the increase in the number of foster children and the households hosting them observed during the period suggests that even in countries where the incidence of the disease may be on the decline, its longer term consequences on the social structure may be felt for a long time in the future. From a methodological point of view, information to clarify the correspondence between orphans

and foster children would be desirable to determine more precisely how much of observed shocks is due to AIDS as compared to other crises. We also know preciously little about the mechanisms of fostering, such as the factors that lead to the choice of particular households as foster parents and not others, the length of time spent, and the mechanisms for integration into the household. All of these would help to strengthen the conclusions drawn here and to make inferences about the relative magnitude of their impact.

It is surprising to see that the large negative impact of receiving foster children not only on households' consumption but also on their capital accumulation in the long-term. The magnitude of the effect, which is estimated to reduce investment by between one fifth and one fourth as compared to the average, in an environment where investment is considered crucial for future growth, implies that further research on the mechanisms at work would be desirable. Such research should identify cost-effective policies that could help to alleviate the impact of such a shock and to avoid that it results in a permanent downward-spiral. A first step would be to identify the time profile of this reduction in investment as well as the channels through which it comes about. To the extent that fostering in our sample is due to AIDS, this would imply that, in addition to the direct loss of welfare through medical expenses and destruction of human capital, the legacy of AIDS reduces permanent income, investment, and (human) capital accumulation even for those who have not been directly affected by the disease, an issue that is of great importance from a macro-economic point of view.

Regarding accumulation of human capital by foster children themselves, our data suggest that foster children face particular difficulties in accessing services but that general policies can go a long way towards helping them to overcome these barriers. It may not come as a surprise that policies which affected the population as a whole also had an impact on some of its most vulnerable members. At the same time, this suggests that NGO programs might help support the general thrust of broader government policies (as in the case of education), they also highlight that, (as in the case of health), efforts by NGOs alone may, in a policy environment that is less conducive, not be sufficient to overcome the barriers confronted by foster children. Whether this implies that, instead of focusing on specific interventions directed towards AIDS orphans, it would be more effective to improve the overall framework of policies regarding households access to social services remains a question for further research.[13] The fact that, even though foster children did initially suffer from a disadvantage, government programs in education and health appear to have affected them in ways similar to children who were living with their physical

[13] If more evidence on the spatial distribution of such programs, as well as some of their main characteristics, were available, it would in principle be possible to conduct at least a first test of this hypothesis. Exploring to what extent NGOs in the country have been able to make a difference and/or to reinforce the impact of government-sponsored programs would be of great importance In order to assess implications for other countries, and as a first step in the design of possible safety net mechanisms.

parents suggests that, despite the far-reaching and deleterious impact of AIDS-related deaths, it is possible to design interventions that help minimize the negative long-term consequences of such a shock.

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Table 1: Socio-economic characteristics, Uganda 1992 and 1999

	Whole country		Central		East		North		West	
	1992	1999	1992	1999	1992	1999	1992	1999	1992	1999
Population characteristics										
Total no of individuals(mn)	18.50	22.04	5.25	6.40	4.81	5.85	3.89	4.19	4.54	5.59
Total no of households (mn)	3.73	4.11	1.14	1.29	0.95	1.08	0.74	0.77	0.90	0.97
Share of population rural	87.4%	86.5%	74.0%	70.3%	90.3%	91.3%	93.9%	94.9%	94.0%	93.9%
Rate of population growth		*2.2%*		*2.5%*		*2.5%*		*0.9%*		*2.6%*
Female headed households	25.6%	26.3%	28.8%	27.8%	21.3%	23.7%	31.1%	34.9%	22.1%	20.8%
Housing conditions and infrastructure access										
Roof thatched	68.7%	47.9%	46.5%	21.3%	70.8%	54.2%	93.9%	93.5%	67.6%	29.7%
Cement walls	5.4%	12.8%	12.0%	24.7%	5.7%	16.1%	2.0%	1.7%	1.2%	6.9%
Piped water	2.1%	2.8%	2.5%	1.2%	1.4%	3.8%	1.4%	0.2%	3.0%	5.1%
Flush toilet	0.8%	0.3%	0.4%	0.3%	0.9%	0.7%	0.6%	0.1%	1.3%	0.2%
Electricity in house	1.9%	1.1%	4.6%	2.7%	1.7%	1.1%	0.6%	0.3%	0.6%	0.4%
Health status and shocks										
Stunted children	53.1%	42.5%	53.6%	38.2%	54.5%	42.6%	49.5%	39.4%	54.3%	48.2%
Households w foster child < 14 a	16.6%	28.1%	20.5%	31.3%	16.8%	26.7%	15.5%	27.9%	12.3%	25.4%
Share of foster children < 14 a	13.7%	21.8%	18.5%	28.3%	13.9%	19.2%	11.8%	20.8%	9.9%	18.0%
Households w foster child < 6 a	5.5%	15.0%	6.3%	16.9%	6.6%	13.2%	4.4%	15.9%	4.4%	13.7%
Share of foster children < 6 a	10.5%	19.3%	14.5%	24.4%	12.0%	15.8%	7.2%	19.3%	8.0%	17.7%

Source: Own computation from the 1990/2000 UNHS and 1992 IHS

Table 2: Growth of per capita consumption and income for households receiving foster children

	Change in per capita expenditure	Change in per capita income	Rate of investment
Household received foster child less than 14 years old in 1992-2000 period			
No	4.91%***	8.34%**	2.40%**
Yes	2.95%	5.81%	1.88%
Total sample	4.42%	7.70%	2.27%

Note: All rates are mean annual growth rates

Stars indicate significance of differences between groups: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 3: Access to services by children with and without their parents

	All children		Own children		Foster children	
	1992	1999	1992	1999	1992	1999
Health indicators for children 0-6 years old						
Share vaccinated against measles	76.9%	67.8%	76.1%	69.1%	80.9%***	61.9%***
Share vaccinated against diphteria	88.3%	82.5%	88.1%	84.0%	89.3%	75.3%***
Share using vitamin A capsules		57.4%		59.0%		50 2%***
Schooling indicators						
Share of 6-12 year olds enrolled in primary	62.1%	83.7%	61.8%	83.7%	63.0%	83 9%
Share of 12-18 year olds enrolled in secondary	10.3%	14.8%	10.4%	15.0%	10.0%	14 3%

Stars indicate significance of differences between foster and own children in 1992 and 1999, respectively: * significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Impact of increase in foster children on household investment

	Change in Investment		*Change in Consumption*	
	Age category of foster children			
	Below 14 years	6-14 years only	Below 14 years	6-14 years only
Change (Δ) in foster children, 1992-2000a	-0.586**	-0.509*	-3.190***	-4.513***
	(2.08)	(1.73)	(2.63)	(3.58)
Δ in foster children * Initial per capita income			0.012**	0.017***
			(2.12)	(3.04)
Change in own children 1992-2000a	0.108**	0.095**	-0.724***	-0.743***
	(2.20)	(2.02)	(7.01)	(7.45)
Head's education (years completed)	0.194**	0.195**	-0.266*	-0.266*
	(2.25)	(2.25)	(1.75)	(1.75)
Education squared	-0.007	-0.007	0.034***	0.035***
	(1.02)	(1.00)	(3.11)	(3.14)
Head's age (years)	0.054	0.046	0.085	0.076
	(1.18)	(1.03)	(0.93)	(0.83)
Head's age squared	-0.001**	-0.001**	-0.001	-0.001
	(2.12)	(1.99)	(0.86)	(0.77)
Initial assets (US $ 1000) in 1992	-0.087**	-0.086**	0.167	0.165
	(2.20)	(2.20)	(1.43)	(1.42)
Per capita income 1992 (US $)			-0.048***	-0.049***
			(15.41)	(15.99)
Urban dummy	0.112	0.107	9.563***	9.562***
	(0.09)	(0.09)	(3.62)	(3.89)
Household size in 1992	0.092**	0.088**	-0.322***	-0.328***
	(2.03)	(1.98)	(3.32)	(3.49)
Eastern region	-0.278	-0.286	-1.731***	-1.790***
	(0.83)	(0.85)	(3.08)	(3.22)
Northern region	-0.748*	-0.757*	-7.525***	-7.614***
	(1.84)	(1.87)	(11.37)	(11.66)
Western region	-0.415	-0.395	-0.626	-0.635
	(1.34)	(1.28)	(1.13)	(1.15)
Constant	1.432	1.597	14.486***	14.961***
	(1.16)	(1.30)	(6.02)	(6.27)
Observations	1056	1056	1117	1117
R-squared	0.08	0.07	0.43	0.43

Robust t statistics in parentheses
+ significant at 10%; * significant at 5%; ** significant at 1%

Table 5: Logit regression for children's school attendance

	Primary school (6-12 year olds)		Secondary school (12-18 year olds)	
	Cross sect.	Fixed effects	Cross sect.	Fixed effects
Foster child	-0.213**	-1.249**	-0.130**	-1.279**
	(6.40)	(7.33)	(2.82)	(4.66)
Foster child * year	0.237**	1.177**	0.154*	0.700*
	(5.00)	(4.90)	(2.53)	(2.08)
Household income	0.404**	0.547*	0.566**	0.658
	(18.63)	(2.05)	(19.55)	(1.23)
Income * year	-0.230**	-1.048**	-0.119**	-0.523
	(7.03)	(3.52)	(3.08)	(0.98)
Male dummy	0.161**	0.583**	0.281**	-0.181
	(5.71)	(5.86)	(6.52)	(0.99)
Male dummy * year	-0.135**	-0.457**	-0.355**	-0.080
	(3.36)	(3.20)	(6.43)	(0.35)
Head's education	0.083**	0.140**	0.072**	0.104
	(8.82)	(2.80)	(6.00)	(1.38)
Head's educ. * year	-0.042**	-0.068	-0.034**	-0.056
	(4.20)	(1.27)	(2.66)	(0.71)
"Mother's" education	0.108**	0.181**	0.049**	0.009
	(10.85)	(3.51)	(4.12)	(0.11)
"Mother's" educ. * year	-0.083**	-0.135*	0.006	0.103
	(7.59)	(2.43)	(0.46)	(1.30)
Year dummy	3.576**	14.545**	1.688**	6.202
	(8.94)	(3.96)	(3.44)	(0.91)
Western region	0.089**		0.016	
	(3.11)		(0.44)	
Eastern Region	0.229**		0.098**	
	(7.73)		(2.73)	
Northern Region	-0.177**		-0.099*	
	(5.71)		(2.18)	
No of observations	24216	7424	15535	2560
No of households		2281		859
Pseudo R^2	0.2276		0.2167	
Log likelihood	-10109.91	-1466.71	-5655.28	-868.09

Absolute value of z statistics in parentheses
+ significant at 10%; * significant at 5%; ** significant at 1%
Note: Age dummies (in years) included but not reported

Table 6: Logit regressions for access to vaccinations by children below 60 months of age

	Diphteria		Measles	
	OLS	Fixed effects	OLS	Fixed effects
Foster child	0.036	-0.065	0.132	0.343
	(0.33)	(0.14)	(1.35)	(0.86)
Foster child * year	-0.392**	-1.233*	-0.428**	-1.656**
	(2.98)	(2.36)	(3.60)	(3.64)
Household income	0.417**		0.327**	
	(6.81)		(6.15)	
Income * year	-0.038		0.028	
	(0.47)		(0.39)	
Male dummy	0.028	-0.212	0.001	-0.116
	(0.37)	(0.89)	(0.01)	(0.59)
Male dummy * year	-0.114	0.142	0.014	0.293
	(1.17)	(0.48)	(0.16)	(1.17)
Father's education	0.111**		0.085**	
	(3.68)		(3.33)	
Father's educ. * year	-0.053+		-0.049+	
	(1.71)		(1.84)	
Mother's education	0.153**		0.113**	
	(4.48)		(3.87)	
Mother's educ. * year	-0.071*		-0.054+	
	(2.02)		(1.79)	
Year dummy	-0.250	-0.765**	-1.087	-0.665*
	(0.25)	(2.58)	(1.25)	(2.56)
Western region	0.770**		0.758**	
	(11.40)		(12.35)	
Eastern Region	0.401**		-0.051	
	(6.34)		(0.92)	
Northern Region	0.594**		0.518**	
	(7.94)		(7.59)	
No of observations	16578	1635	16577	3875
No. of households		652		1541
Adj. R^2	0.0972		0.253	
Log likelihood		-382.305		-493.079

Absolute value of z statistics in parentheses
+ significant at 10%; * significant at 5%; ** significant at 1%
Note: Age dummies (in months) included but not reported

Table 7: Logit regression for children's vitamin A capsule use

	Specification	
	Cross section	HH fixed effects
Foster Child	-0.156**	-1.680**
	(4.28)	(3.07)
Income (log)	0.070**	
	(2.66)	
Male dummy	0.005	-0.116
	(0.20)	(0.54)
Father's education	0.019**	
	(5.19)	
Mother's education	0.006	
	(1.47)	
Western Region	0.384**	
	(9.99)	
Eastern Region	0.632**	
	(16.26)	
Northern Region	0.345**	
	(7.34)	
Observations	9044	1407
No. of households		574
Pseudo R^2	0.1134	
Log likelihood	-5469.67	-163.02

Absolute value of z statistics in parentheses
+ significant at 10%; * significant at 5%; ** significant at 1%
Note: Age dummies (in months) included but not reported

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~~9815~~	This paper has been revised, see Discussion Paper No. 9923

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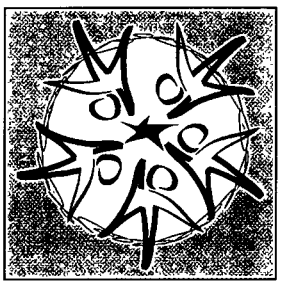

Summary Findings

Although availability of quantitative information on the extent of AIDS in Africa is improving, the socio-economic implications of the epidemic remain poorly understood. This paper explores this issue for Uganda focusing on households who received foster children between 1992 and 2000, a phenomenon that affected more than 15% of households. We find that addition of a foster child resulted in significant reductions of per capita consumption, income, and household investment which were more pronounced for the poor. Initial disadvantages in foster children's access to education for this group were overcome in the course of UPE implementation while new inequalities have emerged in access to health services. Foster children's ability to access services will thus be affected by the broader policy environment as well as programs more specifically targeted at this group.

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